

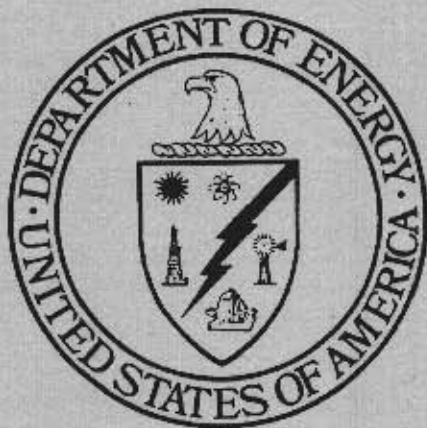


Sandia National Laboratories / New Mexico

**PROPOSAL FOR NO FURTHER ACTION
ENVIRONMENTAL RESTORATION PROJECT
SITE 40, OIL SPILL SITE
OPERABLE UNIT 1309**

June 1995

**Environmental
Restoration
Project**



**United States Department of Energy
Albuquerque Operations Office**

PROPOSAL FOR NO FURTHER ACTION

Site 40, Oil Spill Site
Operable Unit 1309

SANDIA NATIONAL LABORATORIES/NEW MEXICO



1. Introduction

1.1 ER Site Identification Number and Name

Sandia National Laboratories/New Mexico (SNL/NM) is proposing a confirmatory-sampling no further action (NFA) decision for Environmental Restoration (ER) Site 40, Oil Spill Site, Operable Unit (OU) 1309. ER Site 40 is listed in the Hazardous and Solid Waste Amendment (HSWA) Module IV (EPA August 1993) of the SNL/NM Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Facility Permit (NM5890110518) (EPA August 1992).

1.2 SNL/NM Confirmatory-Sampling NFA Process

This proposal for a determination of a confirmatory-sampling NFA decision has been prepared using the criteria presented in Section 4.5.3 of the SNL/NM Program Implementation Plan (SNL/NM February 1994). Specifically, this proposal will "contain information demonstrating that this SWMU has never contained constituents of concern that may pose a threat to human health or the environment" [as proposed in the Code of Federal Regulations (CFR), Section 40 Part 264.51(a) (2)] (EPA July 1990). The HSWA Module IV contains the same requirements for an NFA demonstration:

Based on the results of the RFI [RCRA Facility Investigation] and other relevant information, the Permittee may submit an application to the Administrative Authority for a Class III permit modification under 40 CFR 270.42(c) to terminate the RFI/CMS [corrective measures study] process for a specific unit. This permit modification application must contain information demonstrating that there are no releases of hazardous waste including hazardous constituents from a particular SWMU at the facility that pose threats to human health and/or the environment, as well as additional information required in 40 CFR 270.42 (c) (EPA August 1993).

This unit is eligible for an administrative NFA proposal based on one or more of the following criteria taken from the RCRA Facility Assessment Guidance (EPA October 1986):

Criterion A: The unit has never contained constituents of concern

Criterion B: The unit has design and/or operating characteristics that effectively prevent releases to the environment

Criterion C: The unit clearly has not released hazardous waste or constituents into the environment

Specifically, ER Site 40 is being proposed for an administrative NFA decision because the SWMU has design and/or operating characteristics that effectively prevent releases to the environment (Criterion B).

This site was caused by a spill at an underground storage tank. Therefore New Mexico Underground Storage Tank Regulations have been followed (State of New Mexico 1990). The regulations require that the depth to soil containing 100 or more milligrams per kilogram (mg/kg) of total petroleum hydrocarbon (TPH) be determined. If the distance from the contaminated soil to ground water is greater than 50 feet, the potential impact to ground water generally is considered to be insignificant.

1.3 Local Setting

SNL/NM occupies 2,829 acres of land owned by the Department of Energy (DOE), with an additional 14,920 acres of land provided by land-use permits with Kirtland Air Force Base (KAFB), the United States Forest Service, the State of New Mexico, and the Isleta Indian Reservation. SNL/NM has been involved in nuclear weapons research, component development, assembly, testing, and other nuclear activities since 1945.

ER Site 40 (Figure 1) is located on land owned by DOE. The site is situated in the 6000 Igloo Area south of the Kirtland AFB runway in Tijeras Arroyo, adjacent to the southwest corner of Building 6020.

Surficial deposits in the SNL/KAFB area lie within four geomorphic provinces, which in turn contain nine geomorphic subprovinces. Site 40 lies within the Tijeras Arroyo subprovince. The Tijeras Arroyo subprovince is characterized by broad, west-sloping alluvial surfaces and the 50-meter-deep Tijeras Arroyo. The Tijeras Arroyo subprovince contains deposits derived from many sources, including granitic and sedimentary rocks of the Sandia Mountains, sedimentary and metamorphic rocks of the Manzanita Mountains, and sediments of the Upper Santa Fe Group.

2. History of the SWMU

2.1 Sources of Supporting Information

In support of the request for a confirmatory sampling NFA decision for ER Site 40, a background study was conducted to collect available and relevant site information. Interviews were conducted with Sandia National Laboratories/New Mexico (SNL/NM) staff and contractors familiar with site operational history.

The following information sources were available for the use in the evaluation of ER Site 40:

- Confirmatory sampling program conducted in November 1994
- Soil sampling in May 1994
- Interviews and personnel correspondence
- Ground water level data
- The Comprehensive Environmental Assessment and Response Program (CEARP) Phase I report (DOE 1987)

2.2 Previous Audits, Inspections, and Findings

ER Site 40 was first recognized and listed as a potential release site based CEARP interviews in 1985 (DOE September 1987). The Comprehensive Environmental Response, Compensation, and Liability Act finding was uncertain, therefore, no Hazard Ranking System or Modified Hazard Ranking System migration mode score could be calculated due to insufficient information. Site 40 was not included in the Environmental Protection Agency (EPA) RCRA Facility Assessment (RFA) in 1987 (EPA April 1987).

2.3 Historical Operations

On March 13, 1984, a 15-gallon spill was reported at a 500-gallon diesel fuel oil underground storage tank (UST). The UST was used to store diesel fuel oil #2 for heating Building 6020 (Figure 1). The spill was caused by overfilling the tank; the automatic shut-off valve apparently failed and the operator was not in the immediate vicinity. An Unusual Occurrence Report (UOR) was submitted that describes the incident and follow-up actions in detail. Soil from a nearby area was used to absorb and contain the spill, then was removed immediately. The spill area was excavated to three feet below grade and the contaminated soil was taken to the KAFB landfill. In late 1989, the UST was removed, as well as all soil in the immediate vicinity of the tank.

3. Evaluation of Relevant Evidence

3.1 Unit Characteristics

There was an automatic shut-off valve which would have prevented an oil spill, had it not failed on March 13, 1984. The UST was removed in 1989.

3.2 Operating Practices

Spill response activities or actions taken after known releases are discussed in Section 2.3, Historical Operations.

3.3 Presence or Absence of Visual Evidence

At the time of the spill (March 1984), contaminated soil was excavated to three feet below grade immediately and disposed in the KAFB landfill. The UST was removed in 1989, including all soil in the immediate vicinity of the tank. There currently is no sign of discoloration of soils.

3.4 Results of Previous Sampling/Surveys

Two monitoring wells are located in the immediate vicinity of Site 40 that verify the depth to ground water in this area at approximately 360 feet below ground surface (Table 1). Perched aquifers have not been detected in the vadose zone between the main aquifer and the ground surface.

3.5 Assessment of Gaps in Information

On March 1, 1994, ER Project staff were informed of a leak from an underground potable water tank near Site 40. Based on information obtained, the water leak should not have transported contamination because it was believed that all the contamination caused by the previous diesel fuel leak was removed. The water tank was excavated and replaced on May 4, 1994. To further verify the past cleanup, three samples of the excavated material were collected and analyzed for total petroleum hydrocarbons (TPH) using U.S. Environment Protection Agency (EPA) Method 3550/418.1. The sampling results are given in Table 2. On June 24, 1994, these results were reported to Betsy Hovda of the Underground Storage Tank Bureau of the New Mexico Environment Department (NMED). After conferring with other NMED personnel, Hovda requested three boreholes be installed and samples collected at 5-foot intervals until two consecutive samples indicated levels of TPH below 100 mg/kg.

3.6 Confirmatory Sampling

Soil samples were collected from three boreholes using the Geoprobe™. One borehole was located within the area of highest known or suspected contamination, at the center of the former UST excavation. The other two boreholes were placed at locations most likely to provide data that delineated the horizontal extent of any contamination. The three Geoprobe™ boreholes were located approximately 25 feet from one another (Figure 1). The first sample from each borehole was collected from a depth of 5 to 7 feet. Subsequent samples were collected at depths of 10 to 12 feet and 15 to 17 feet. Each sample was described lithologically and contamination was assessed by visual observation and field screening with a photoionization detector (PID) for organic vapor concentrations using the head-space method. The shallow subsurface geology underlying these locations was similar for each borehole, primarily consisting of unconsolidated fine-grained sands and some silts with traces of fine gravel.

To determine the vertical extent of contamination, the boreholes were advanced until two consecutive samples indicated non-detection using the EnSys PetroRis™ kit for diesel detection. The EnSys PetroRis™ kit provided a Level II quantitative test that gave an upper and lower limit for diesel concentrations in soil. The EPA has approved its use as a field screening tool. The EnSys PetroRis™ kit has a reported accuracy of 95 percent. Also, all the samples were sent to an off-site laboratory and analyzed for TPH by Modified EPA Method 418.1.

The results of the laboratory analyses are shown in Table 3. Only one concentration exceeded 100 mg/kg. This sample was 5 to 7 feet deep in Borehole 3 (BH-3). This sampling was followed by two deeper samples, both with concentrations less than 100 mg/kg.

3.7 Rationale for Pursuing a Confirmatory NFA Decision

SNL/NM is proposing a confirmatory sampling NFA because

- The confirmatory borehole samples had TPH concentrations less than the action level set by the NMED of 100 mg/kg at all sample locations that were collected at depths greater than 7 feet.
- Two nearby ground water monitoring wells verify that the water table is approximately 360 feet below the zone of contamination, compared to a regulatory guideline of 50 feet.
- A closure letter has been received from the NMED UST Branch.
- The UST and contaminated soils have been successfully removed at Site 40 so that there is no longer a threat to human health and the environment.

4. Conclusion

Based upon the evidence cited above, ER Site 40 has design and/or operating characteristics that effectively prevent releases to the environment. Therefore, ER Site 40 is recommended for an NFA determination.

5. References

5.1 ER Site References

U.S. Environmental Protection Agency (EPA), July 1990. "Corrective Action for Solid Waste Management Units (SWMU) at Hazardous Waste Management Facilities, Proposed Rule," *Federal Register*, Vol. 55, Title 40, Parts 264, 265, 270, and 271.

Department of Energy, Albuquerque Operations Office, Environmental Safety and Health Division, Environmental Program Branch, September 1987, draft "Comprehensive Environmental Assessment and Response Program (CEARP) Phase I: Installation Assessment, Sandia National Laboratories, Albuquerque, New Mexico."

State of New Mexico, 1990. Underground Storage Tank Regulations, State of New Mexico, Environmental Improvement Board, Santa Fe, New Mexico.

U.S. Environmental Protection Agency (EPA), April 1987. "Final RCRA Facility Assessment Report of Solid Waste Management Units at Sandia National Laboratories, Albuquerque, New Mexico," Contract No. 68-01-7038, EPA Region VI.

Sandia National Laboratories/New Mexico (SNL/NM), August 1994. Environmental Restoration Project Information Sheet for Site 40, Oil Spill (6000 Igloo Area), Sandia National Laboratories, Albuquerque, New Mexico.

U.S. Environmental Protection Agency (EPA), April 1987. "Final RCRA Facility Assessment Report of Solid Waste Management Units at Sandia National Laboratories, Albuquerque, New Mexico," Contract No. 68-01-7038, EPA Region VI.

U.S. Environmental Protection Agency (EPA), August 1992. "Hazardous Waste Management Facility Permit No. NM5890110518, EPA Region VI," issued to Sandia National Laboratories, Albuquerque, New Mexico.

U.S. Environmental Protection Agency (EPA), August 1993. "Module IV of RCRA Permit No. NM 5890110518, EPA Region VI," issued to Sandia National Laboratories, Albuquerque, New Mexico.

5.2 Reference Documents

Sandia National Laboratories/New Mexico (SNL/NM), February 1994. Draft "Program Implementation Plan for Albuquerque Potential Release Sites," Albuquerque, New Mexico.

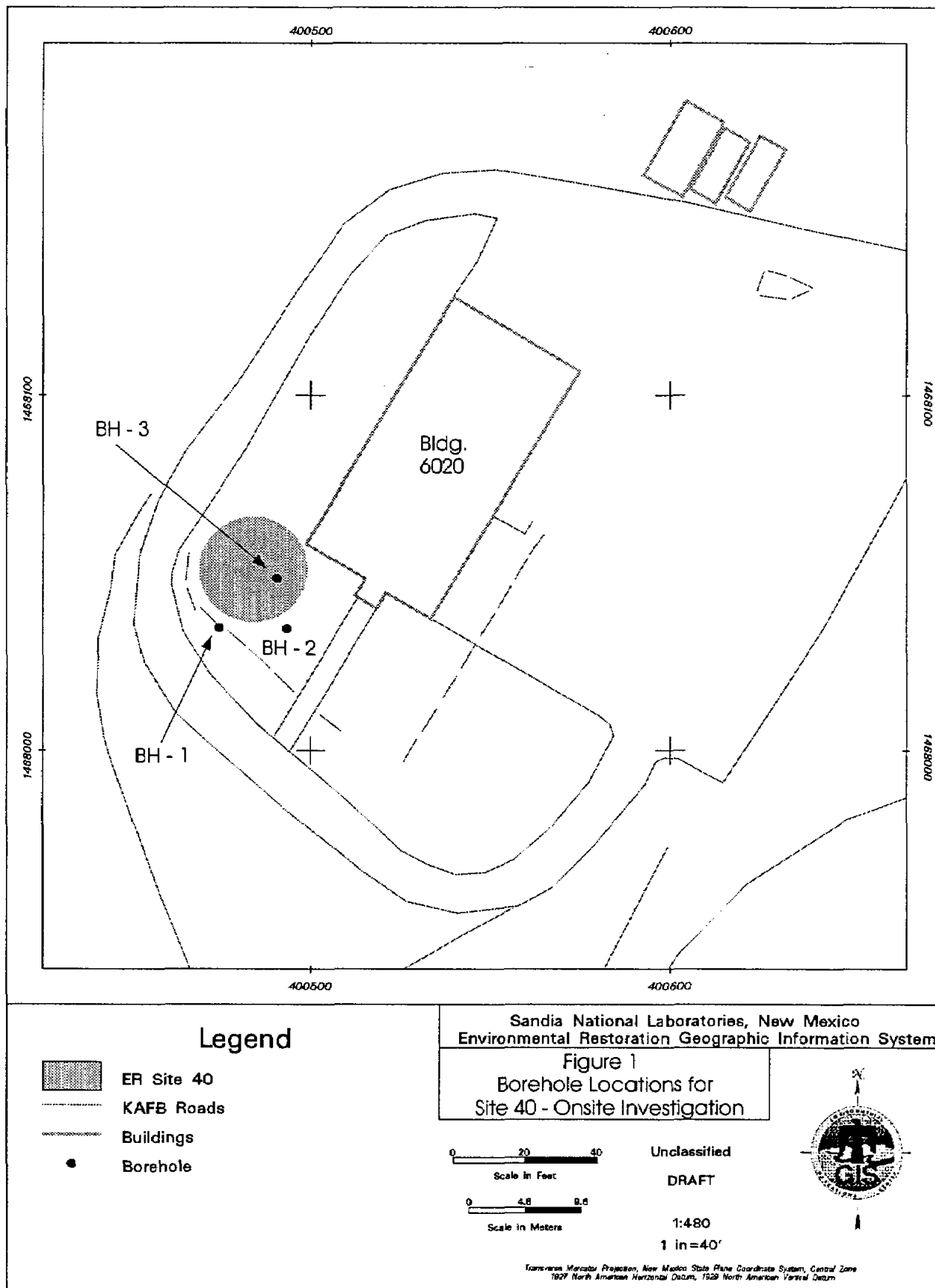


Figure 1. Borehole Locations for Site 40-Onsite Investigation

Table 1. Ground water Levels at Two Monitoring Wells Near Site 40

Monitor Well ID	Elevation above sea level (feet)	Depth to water below ground surface (feet)	Date of Measurement	Location
KAFB-0110	4873.55	385.30	December 93	~1480 ft NW of Site 40
KAFB-0902	4878.52	348.78	December 93	~3000 ft W of Site 40

Table 2. Site 40 Results from Three Samples Collected on May 4, 1994

Sample Number	Depth (feet)	TPH (mg/kg)	Comments
015858-1	3.0	3,780	Collected from top of water tank in center of excavation
015859-1	3.0	2,950	Collected from top of water tank along manhole about 2 feet south of Sample 15858-1
015860-1	5.25	47.9	Collected along northeast border of trench about 2 feet from Sample 15858-1

Table 3. Site 40 TPH Analytical Results

Borehole Number	Sample Number	Depth (feet)	TPH (mg/kg)	Detection Limit (mg/kg)
BH-1	40-01-001	5 to 7	Not Detected	40
BH-1	40-01-002	10 to 12	Not Detected	40
BH-1	40-01-003	15 to 17	Not Detected	40
BH-2	40-02-001	5 to 7	Not Detected	40
BH-2	40-02-002	10 to 12	40	40
BH-2	40-02-003	15 to 17	Not Detected	40
BH-3	40-03-001	5 to 7	360	40
BH-3	40-03-002	10 to 12	Not Detected	40
BH-3	40-03-003	15 to 17	Not Detected	40

These data were reported to the NMED UST Branch. The resulting closure letter is included as Attachment 1.

APPENDIX A

On-site Investigation Plan




**SAMPLING AND ANALYSIS PLAN
FOR
AN ON-SITE INVESTIGATION
AT
ENVIRONMENTAL RESTORATION SITE 40
SANDIA NATIONAL LABORATORIES/ NEW MEXICO**



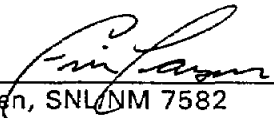
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AT
ENVIRONMENTAL RESTORATION SITE 40
SANDIA NATIONAL LABORATORIES/ NEW MEXICO

Approval recommended by:




Jim Brinkman, SNL/NM 7582
Author

11/3/94
Date



Eric Larsen, SNL/NM 7582
Technical Reviewer


11/3/94
Date



Rarilee Conway, SNL/NM 7582
Task Leader

11/3/94
Date

Approved by:



Fran Nimick, SNL/NM 7582
Department Manager

11/3/94
Date



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1. INTRODUCTION

1.1. Purpose

The purpose of this On-Site Investigation (OSI) is to determine the lateral and vertical extent of soil contamination at Environmental Restoration (ER) Site 40, a former Underground Storage Tank (UST) and surface diesel leak site (Figure 1). The sampling effort should require one to two days of field activity and should be conducted in late October or early November, probably the week of October 31, 1994.

1.2. Scope

This plan defines the detailed methods needed to advance, describe, and sample soil borings at the site. The plan includes specific information for field screening and collecting soil samples for chemical analysis of total petroleum hydrocarbons (TPH). This document provides information regarding project responsibilities, field and laboratory methods, waste management, and quality assurance/quality control activities required to meet project goals.

The OSI will be performed according to guidance in the State of New Mexico Environmental Improvement Board (NMEIB) Underground Storage Tank Regulations (USTR) (NMEIB, 1989), Part 12, as clarified by "UST Soil/Water Sampling and Disposal Guidelines," revised May 25, 1993 (NMED, 1993), except that three instead of five soil borings will be advanced based on the request by New Mexico Environment Department (NMED).

2. SITE HISTORY

Site 40 is located in the 6000 Igloo Area south of the Kirtland AFB runway in Tijeras Arroyo, along the southwest corner of Building 6020. The 6000 Igloo area is completely fenced with security at the entrance gate. On March 13, 1984, a 15-gallon spill was reported at a 500 gallon diesel fuel oil UST. The UST was used to store diesel fuel oil #2 for heating Building 6020. The spill was caused by overfilling the tank; the automatic shut-off valve apparently failed and the operator was not in the immediate vicinity. An "Unusual Occurrence Report" (UOR) was submitted that describes in detail the incident and follow-up actions. The immediate response included removing soil from a nearby area that was used to absorb and contain the spill. The spill area was excavated to 3 feet below grade and the contaminated soil was taken to the Kirtland AFB Landfill. In 1989 or 1990, the UST was removed, including all soil in the immediate vicinity of the tank.

On March 1, 1994, the ER Project was informed of a leak from an underground potable water tank at the general location of ER Site 40. Based on information obtained by the ER Project, the leak of potable water should not have transported contamination because all the contamination caused by the leak of diesel fuel was removed. The water tank was excavated and replaced on May 4, 1994. The ER Project collected three samples of the excavated material for TPH analysis with method 3550/418.1. The sampler (Ray Patteson, Dept. 7574) noted that the excavated material smelled like a musky basement (probably mildew). No diesel smell was detected. The sampling results are given in Table 1.

Table 1. Results from Three Samples Collected on May 4, 1994

Sample Number	Depth (feet)	TPH (mg/kg)	Comments
015858-1	3	3,780	Collected from top of water tank; in center of excavation
015859-1	3	2,950	Collected from top of water tank; along manhole about 2 feet south of sample 15858-1
015860-1	5.25	47.9	Collected along northeast border of trench; about 2 feet from sample 15858-1

On June 24, 1994, these results were reported to Betsey Houda of NMED. After conferring with other NMED personnel, she requested additional sampling at Site 40. Three Geoprobe™ boreholes to collect samples at 5-foot intervals until two consecutive samples indicate levels of TPH below 100 mg/kg were requested.

3. RESPONSIBILITIES

Personnel with defined responsibilities in this project include the following:

3.1. Assistant Task Leader

The SNL/NM Assistant Task Leader (ATL) will function as the primary interface between SNL/NM and other organizations (e.g., the sampling team). The ATL, or designee, will provide day-to-day oversight of the project, evaluate any project changes and non-conformances and approve corrective actions, review and approve project data, and ensure that the final OSI report is forwarded to the SNL/NM Environmental Operations Records Center, to the State of New Mexico, and to EPA Region VI. The ATL will interface with other SNL/NM organizations as needed and will be responsible for arranging utility clearances, digging permits, and personnel access to the area as required. The ATL will interface with the Generator Interface Department 7572 to ensure proper disposal of project-generated waste, and will notify the SNL/NM AIP Oversight Staff at least 10 days prior to beginning field work.

The ATL is responsible for the successful implementation of site investigation activities, will ensure that the technical objectives are achieved, and will communicate with the SNL/NM Task Leader on the progress of the project and any changes to this plan.

3.2. Geologist/Site Safety Officer

The geologist will coordinate and oversee the site investigation activities, review the field documentation, coordinate sample analyses with the SNL/NM Sample Management Office (SMO) and off-site laboratories, and prepare the final project reports for transmittal to the SNL/NM Task Leader. The geologist will ensure that all activities are conducted in strict accordance with this plan, and will provide other assistance to the ATL as requested. The geologist will serve as the Site Safety Officer, and will implement the site-specific health and safety plan and will have primary responsibility for health and safety monitoring.

3.3. Field Technician

Under direction of the geologist, one field technician will be responsible for collecting, monitoring, and shipping samples; completing sample control documentation; assisting the geologist in health and safety monitoring; and providing additional field support as specified in this plan and any associated project plans and procedures. The field technician will also assist the geologist in the decontamination of all Geoprobe™ or auger sampling equipment between borings and between sites.

3.4. SNL/NM Field Personnel

Personnel from SNL/NM (Department 7584) will be responsible for the operation and maintenance of the Geoprobe™ and associated sampling equipment, and for performing the immunoassay field analyses.

3.5. Analytical Laboratory

The contract analytical laboratory will perform all analyses as directed by the geologist through SMO. The laboratory will maintain documentation of sample handling, custody information, and quality control data. The laboratory will be responsible for preparation of the analytical reports, which will include quality control data. The analytical laboratory which will perform the chemical analyses of soil and rinsate samples is:

Encotec
3985 Research Park Drive
Ann Arbor, MI 48108
(303) 761-1389
Laboratory contact: Roger Rousel
Laboratory contract number: 67-9736A

4. SAMPLING OBJECTIVES, LOCATIONS, AND FREQUENCY

4.1. Sampling Objectives

The sampling objective is to determine the extent of possible contamination at Site 40 as required by Part 1205 of the USTR. To fulfill this objective, soil samples will be collected from the three soil borings using the Geoprobe™. If refusal of the Geoprobe™ occurs and the extent of contamination has not been determined, a hollow-stem auger drill rig (or, if necessary, an air-rotary casing hammer or a dual-tube percussion drill rig) will be mobilized to continue the investigation. If drilling methods other than the Geoprobe™ are required, work will cease and the plans will be modified, reviewed, and approved for another drilling method. Soil borings will be described and sampled at five-foot intervals. To examine the extent of contamination, the soil borings will be advanced until two consecutive samples indicate non-detection using the EnSys PetroRis® kit for diesel detection. The EnSys PetroRis® kit provides a Level II quantitative test that gives a upper and lower limit for diesel concentrations in soil. USEPA has approved its use as a field screening tool. The EnSys PetroRis® kit has a reported accuracy of 95 percent.

All samples shipped to the laboratory will be analyzed for TPH by Modified EPA 418.1 (USEPA, 1986). Standard laboratory turnaround time will be requested for all analyses.

4.2. Sampling Locations

Three Geoprobe™ soil borings will be advanced. One soil boring will be located within the area of highest known or suspected contamination, at the center of the former UST excavations. The additional borings will be placed at locations most likely to provide data which will delineate the horizontal extent of any contamination (Figure 1). All boreholes will be advanced until field screening methods indicate no further contamination (a minimum of 15 feet, or until refusal of the Geoprobe™ occurs).

4.3. Sampling Frequency

The first sample from each borehole will be collected at a depth of 5 feet. Subsequent samples will be collected at intervals of five feet or less for the entire depth of all borings. Each sample will be described and contamination will be assessed by visual observation and field screening with the PID for organic vapor concentrations using head-space methods. The EnSys PetroRis® kit will be used for all samples and all samples will be submitted for laboratory analysis.

5. OPERATIONS AND PROCEDURES

This section presents field and analytical operations and procedures and includes a discussion of borehole advancement methods, equipment decontamination, sample collection, field measurements, analytical methods, sample management and custody, waste management, and prerequisites for field activities.

5.1. Borehole Advancement Procedures and Soil-Sample Collection Activities

The Geoprobe™ is mounted on a pickup and works by "hammering" a closed sample tube into the ground to a desired depth. The sample tube is then opened with a retrieval tool and the sample tube is advanced, taking in soil from a discrete zone. The sample is then brought to the surface and the soil is pushed out of the sample tube and immediately put into a sample container to avoid any loss of volatile compounds. Counts of hammer strikes (blow counts) will be recorded on a field log. Samples will be extracted immediately from the split-spoon sampler, by personnel wearing clean NITRILE gloves in addition to any protective gloves, for laboratory analysis and for volatile organic monitoring as described below.

Drilling and sampling activities will be performed in health and safety Level D in accordance with the site specific health and safety plan. A photo-ionization detector, specifically the OVM, will be used for this sampling event. The OVM is manufactured by Thermoenvironmental Instruments, Inc. The OVM will have a 10.6 eV lamp. Readings will be taken upon site entry, when the soil surface is broken, and when a subsurface sample is collected. In addition, air monitoring for volatile organic vapors within the breathing zone will be performed every hour during drilling activities. Work will be stopped and the Industrial Hygiene (IH) Support will be contacted when readings in the breathing zone are 3 units above background. IH can then determine the degree of concern and additional personal protection and monitoring requirements.

5.2. Borehole Abandonment

Following the investigation, the Geoprobe™ borings will be filled with sand to within six to twelve inches bgs, plugged with bentonite to surface, and the site will be restored to its original grade.

5.3. Decontamination

Decontamination of the Geoprobe™ sampling equipment will be done between each sampling event. Decontamination will include thoroughly washing the inside and outside of the sample tube with LIQUINOX™ and water; rinsing with distilled, deionized water; and allowing to air-dry before reusing. Decontamination will be done in accordance with FOP 94-26, "General Equipment Decontamination" (SNL/NM, 1994a).

All sample containers will be new and cleaned in accordance with Procedure QA 08-01, "Environmental Programs Department (7720) Procedure for Sample Management and Custody" (SNL/NM, 1991a). Geoprobe™ rods and sample chambers will be decontaminated in plastic tubs, which will contain the decontamination fluids. All fluids derived from decontamination activities will be placed into a 5-gallon bucket(s), as appropriate, and properly labeled.

5.4. Visual Soil Classification

Representative subsurface soil samples will be collected for visual classification and description of the color, moisture, soil structure, soil types, relative plasticity, Unified Soil Classification symbol, and total thickness of each soil layer, as required by the USTR (NMEIB, 1989). Soil descriptions will follow methods described in FOP 94-05, "Borehole Lithologic Logging" (SNL/NM, 1994c). Soil classifications and a graphic log will be recorded on a copy of the boring log form.

5.5. Field Measurements

Samples retrieved during sampling activities will be field-screened for volatile organic compounds using head-space methods and a PID, as described in FOP 94-28, "Health and Safety Monitoring of Organic Vapors (Flame Ionization Detector [FID] and Photoionization Detector [PID])" (SNL/NM, 1994d), and the

USTR head-space method (NMEIB, 1989). Results of head-space screening will be recorded on a sample screening log. In addition to visual observations and head-space screening, the EnSys PetroRis® kit will be applied to all samples.

Air monitoring for volatile organic vapors within the breathing zone will be performed every hour during drilling activities, using a PID. Results of air monitoring will be recorded on a site screening log. Field measurement equipment calibration and operation will be in accordance with FOP 94-28.

5.6. Sample Management and Custody

Samples (including laboratory and immunoassay) will be handled to maintain sample integrity from collection through analysis. Sample management activities include documentation of sample locations and sampling conditions on the Sample Collection Log (SCL) form, assignment of unique sample identification numbers, initiation of sample custody with the Analysis Request and Chain of Custody Record (ARCOCR), completion of the sample label information, and completion of the ARCOCR detailing analysis instructions. Field observations and measurements will be recorded on appropriate field activity and sample screening forms, in accordance with FOP 94-25, "Documentation of Field Activities" (SNL/NM, 1994b). Sample management and custody activities will be performed in accordance with SNL/NM procedures QA 08-01, "Environmental Programs Department (7720) Procedure for Sample Management and Custody" (SNL/NM, 1991a). Laboratory samples will be shipped via overnight carrier to the specified laboratory by the SMO.

5.7. Waste Management

The SNL/NM ATL will be responsible for overseeing the proper packaging and disposal of investigation-derived wastes (IDW). SNL/NM Department 7572 will be notified when waste materials have been generated, and will initiate appropriate disposal of waste materials generated under this plan. Department 7576 will be responsible for sample management and analysis. Waste will be managed in accordance with SNL/NM ES&H Manual MN471007.

All used disposable personal protective equipment (PPE) will be segregated from soil cuttings and unregulated trash and labeled as IDW. Sampling with the Geoprobe™ is not expected to generate large volumes of IDW. Labels will be appropriately completed, using a permanent pen, per SNL/NM ES&H Manual MN471001 and guidance from SNL/NM Department 7572. Information on the labels will include waste source, suspected contaminants, contents, depth generated, date of accumulation and storage start, and the name of the Task Leader. Disposal of any contaminated soil and rinse water will be done per NMEIB USTR and Department 7572 guidance.

6. QUALITY CONTROL

6.1. Field Documentation

Field documentation will be completed on standardized forms and include, at a minimum, the following:

- these
no
forms
are
combined
10
1/3/94
- SCL containing: project identification, sample number, date and time of sampling, and location and depth of sample;
 - ARCOCR containing: sample volume, sample container type, sample custody signatures, analyses requested, and sample team members;
 - Soil boring log;
 - Sample screening log;
 - Site monitoring log; and
 - Completed field log for each day in the field.

6.2. Duplicate Samples

Duplicate samples will be collected at the rate of 10% of the original samples, i.e., one duplicate sample is anticipated. The duplicate will be collected at the interval that is most likely to have contamination, i.e., a sample from a 5-foot depth. The duplicate will be composed of soil immediately adjacent to that

from which the original sample is taken and will be analyzed to assess overall sampling and analysis system precision.

6.3. Equipment Rinsate Blanks

One equipment rinsate blank sample will be collected by pouring deionized water through a decontaminated sampler into appropriate sample bottles and will be analyzed for TPH. The equipment blank will provide a check on the adequacy of the decontamination procedure, and will be collected after advancement of the first boring.

6.4. Laboratory Quality Control

Laboratory quality control will be performed as required by the laboratory's quality control/quality assurance plan and according to the contractual arrangements between the laboratory and SNL/NM. The laboratory report will contain the results of all quality control analyses.

6.5. Data Review and Validation

Review of the laboratory data will be performed according to TOP 94-03, "Verification and Validation of Chemical and Radiochemical Data" (SNL/NM, 1994d). Unacceptable data or conditionally acceptable data will be identified and either not reported or reported with qualifiers.

7. REPORTING

Prior to final report preparation, the ATL will notify the SNL/NM Task Leader of initial results to determine if additional sampling or analyses are necessary to complete the investigation. Following completion of the field investigation, the results will be presented in a summary report of the OSI, as specified in USTR Part 1206, which will include a site figure, laboratory analytical reports, and all field documentation. These reports will be produced by the site geologist and ATL.

8. REFERENCES

Sandia National Laboratories/New Mexico (SNL/NM), 1994a, "General Equipment Decontamination," *FOP 94-26*, Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 1994b, "Documentation of Field Activities," *FOP 94-25*, Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 1994c, "Borehole Lithologic Logging," *FOP 94-05*, Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories/New Mexico (SNL/NM), 1994d, "Health and Safety Monitoring of Organic Vapors (Flame Ionization Detector [FID] and Photoionization Detector [PID])" *FOP 94-28*, Sandia National Laboratories, Albuquerque, New Mexico.

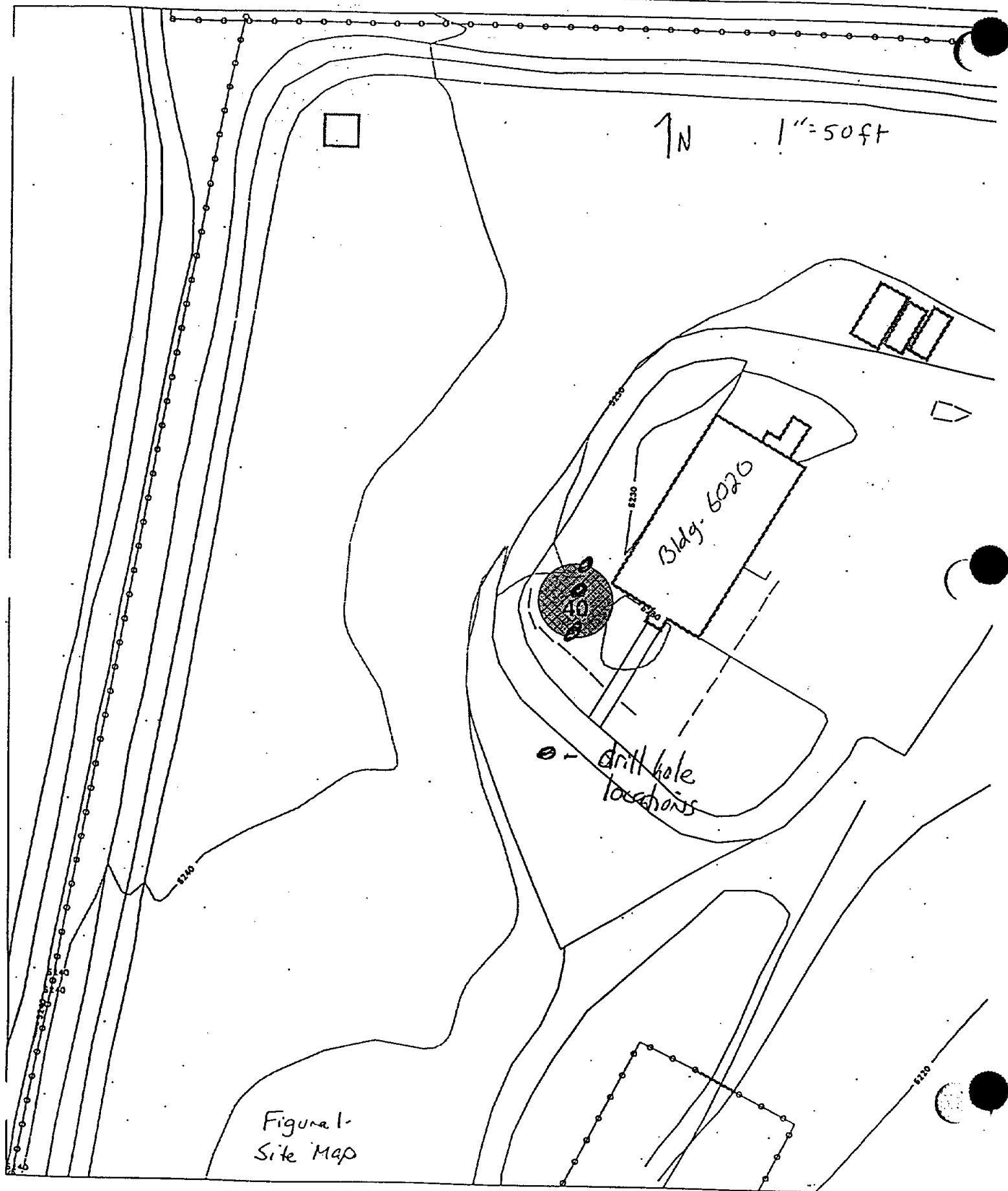
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Sandia National Laboratories/New Mexico (SNL/NM), 1991a, "Environmental Programs Department (7720) Procedure for Sample Management and Custody," *QA 08-01*, Sandia National Laboratories, Albuquerque, New Mexico.

State of New Mexico Environment Department (NMED), 1993, "Underground Storage Tank (UST) Soil/Water Sampling and Disposal Guidelines, revised May 25, 1993," State of New Mexico Environment Department, Santa Fe, New Mexico.

State of New Mexico Environmental Improvement Board (NMEIB), 1989, "Underground Storage Tank Regulations, Part 12," State of New Mexico Environmental Improvement Board, Santa Fe, New Mexico.

U.S. Environmental Protection Agency (EPA), 1986, "Test Methods for Evaluating Solid Waste, Volumes 1A and 1B: Laboratory Manual Physical/Chemical Methods," SW-846, 3rd ed., U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C.



ATTACHMENTS

Attachment 1
NMED UST Branch Closure Letter